N 315 S [315] new oil plants at Tu-shan-tzu in Sinkiang. Undoubtedly, the exploitation of the Yü-men oil field of Kansu has been considerably increased in the last two years. At a conference on petroleum research, called in May, 1954, by the Ministry of N 315 648 177 Fuel, Popoff, a Russian professor, laid great emphasis on the development of Yü-men oil fields, where Russians have been working side by side with German, Czech, and Rumanian oil experts (KM Oct. 1, 1954). Towards the end of 1953 the Russian Atlas (sic!) was experimenting there on an improved method of oil exploitation which was to be introduced in 1954 (PD Feb. 9, and June 23, 1954).

N 315 654 Special emphasis on oil prospecting and drilling are given by the Communist Government. Throughout the nation, geological surveying and prospecting plans since 1953 have been the most inttensive in China's history. Total Government investment in surveying in the Northwest in 1953 was nearly seven times more than the previous year. Twice as many oil wells were planned to be sunk in 1953 as compared to 1952, while work on other mineral reserves topped previous years' quota by thirty-three percent.

The bureau in charge of prospecting and surveying mineral reserves in the Northwest trained nearly 2,000 workers in drilling, surveying, drawing, and analysis in 1953. (Geological Report, China Monthly Review, May, 1953).

N 315 The first drilling for oil was made some sixty years ago at Yen-chang in northern Shensi province. During the Anti-Japanese war, China spent large sums to equip the China National Petroleum Corporation's field at Yü-men in Kansu. At present, the major production is at Shih-you-ho near Yü-men in the most northwestern part of Kansu at the foot of N [133] the Nan-shan. There the possible oil-bearing formations extend 700 miles, with a width of some tens of miles. Seepages are known in four localities, but only a few anticlines have N [433] been developed. Drilling started in 1939, and the yield amounts to several thousand barrels a day. The oil has a fifteen percent paraffin base. Prospects in Sinkiang appear even more promising, with oil on both sides of the Tien-shan Mountain Range. S 315 [648] [433] Drilling at Wu-su, west of Urumchi and in the northern foothills of Tien-shan began in 1935, under Soviet direction. Its current yield is only a few hundred barrels a day. However, some new fields have been discovered and new wells drilled in other parts of the province.

N 315 S [315] Recently, both oil-extracting and refining industries have been growing rapidly. Refining facilities in northwest China with its five oil regions distributed in north Shensi, West Kansu, central Kansu, and Ho-hsi corridor and Sinkiang have been substantially extended. Petroleum development is one of

315 and more oil sands may be found in the sands between the
[133] source beds and the present shallow reservoirs, which would increase the reserves a great deal. Oil seepages have been discovered at Wen-chu-shan, south of Chung-yüan (36.37 by 104.32), Shan-hsien-tzu, south of Yung-teng (36.44 by 103.24); Ching-tu-chen, north of Yung-cheng (38.17 by 102.07) and near Yü-men (40.15 by 97.13). Only one oil field has been developed in this basin - the Shih-you-ho, southwest of Yü-men at approximately 39.46 by 97.33 and near the last seepage.

[648] In 1937 the Standard-Vacuum Oil Company sent a party of geologists in to examine the field. After a study of its report the Chinese Government decided to develop the Shih-you-ho anticline. Actual drilling started in February, 1939, on the crest of the anticline near the oil seepage and sent to 492 feet and produced twenty barrels a day from two small oil sands. A second well nearby to a depth of 656 feet gave thirty-five barrels a day. These wells were drilled on the floor of the canyon by two small cable rigs and a small boiler. Then two rotary drills with Diesel engines were brought in from the coal mines. Nineteen holes in all were drilled up to
[433] March, 1944, the deepest being near 1,400 feet. Number 18 well at 1,313 feet came in with 10,000 barrels a day, but blew out cratering the hole. On account of small refinery capacity, only 4,000 barrels of crude could be handled a day. Until a larger and better refinery can be brought in, the wells now drilled supply the crude oil needed. The oil is a paraffin base, with 15.5 percent paraffin content, which is difficult to handle at low temperatures in that part of the country. It is impossible to estimate the potential reserves at present, but the extent of the anticlinal structure offers great promises. A geologist who visited the field in 1943 said that there may be twenty-six to forty-six million barrels of recoverable oil in the pool.

[133] Within the radius of eighteen miles of this field are three other anticlinal structures in the Tertiary sediments that warrant investigation. Other likely structures will probably be discovered as the basin is thoroughly examined.

315 The production of oil at the Yü-men field increased to
433 4,000,000 gallons in 1946. With the completion of thirteen construction projects in early 1955, its production has been considerably increased as well as greatly improved in the refining process of the oil produced. According to press reports, the Yü-men oil fields reported over-fulfillment of production targets for the first quarter of 1955. The oil fields administration stated that output targets for gasoline, kerosene, diesel, and lubricating oil and other items were surpassed by seven to fifty-one percent in the first quarter. (NCNA, April 14, 1955). It was also said that a number of the newly-completed projects

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[433] now enable Yü-men to produce eighteen percent more heavy lubricating oil and fifteen percent more kerosene. (NCNA April 22, 1955).

Numerous new oil-bearing structures and seepages have recently been discovered around Wu-chung, Ku-yüan, Hua-ting and some other districts in Eastern Kansu province. A recent report stated that preparations are now being made to drill a deep test well on the biggest structure which extends over 120 square kilometers around Wu-chung. (See Table II.) 1 A

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[135] Oil Development in Sinkiang:

To the west of Kansu lies Sinkiang, a province rich in minerals, particularly oil. Recent prospecting reveals that Sinkiang has excellent oil possibilities.

There are two basins, the Dzungarian in the north and the Tarim in the south. Seepages have been found in both and the prospects of finding petroleum are good. The Dzungarian Basin is enclosed between the Tien-shan Range on the south and the Altai mountains in the north. Seepages are reported at Ching-shih-hsia near Chuguchak (Tarbagatai or Ta-cheng) (46.45 by 83.40), near Kuldja (Ili or Ining) 43.48 by 81.17), at a place southwest of Sui-lai (44.21 by 86.19) and at Urumchi (Tihua) (43.48 by 87.36). The Tu-shan-tzu field is about five miles southeast of Wu-su, (location approximately 44.15 by 85.0). In the district of Wu-su there are also oil seepages at Ssu-su-mu, Chiang-chun-kou, An-chih-hai-ho, and Ta-shih-tan.

The Tarim Basin lies south of the Tien shan and north of the Kunlun and Altyn Tagh mountains in southern Sinkiang. It is occupied by the great Takla Makan Desert, one of the most barren spots on earth. A small, undeveloped oil field is said to exist at Hei-tzu-erh-po near Kashgar (39.27 by 75.59), and there are oil seepages at Su-ta-che, Shui-mo-kou, Tun-ho, Ssu-cha-kou, Wensu Aksu (41.06 by 79.58), at Shang Wu-pu in Sha-che, Yarkand, Hsiao-kuai in Sha-wan and at Kucha (41.40 by 83.04). From the geological formation, which consists of a thick series of Tertiary strata containing marine Eocene beds in the western part of the basin and which underlie the basin, it is thought that the oil possibilities are good. Much work will have to be done to map the structures.

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Drilling has been started at Hung-tung-shan in Kucha, at Hsi-ho in Tarbagatai (T-cheng), Tu-shan-tzu south of Wu-su, Urumchi, Turfan, and Kashgar (Shu-leh). Petroleum is obtained to the west of Urumchi, where the oil is scooped from the surface of water with buckets. The petroleum is of black color. Petroleum can also be found from Shih-ho to Manas in the Urkashar Mountains, and also between the caravan stations of Kurtu Anchihai-ho in the district of Wu-su. The richest

1, [See p. 128--Analyst]
A

and Liu-pa followed by Lieh-yang, Tsu-nan, Chenan and Hsihsiang, where primitive mining has been carried on by native methods. The total annual production is less than 2,000 tons.

In Kansu, iron ore is mined in the districts of Liang-tang, Hui-hsien, Cheng-hsien, Hsi-ku, Yung-tang, Tien-shui, and Wen-hsien. The total output is about 25,000 tons, while the total reserve of Kansu is said to amount to 12,600,000 metric tons.

Iron ore deposits have been reported in Chinghai, but no further data are available.

In Sinkiang, iron deposits are distributed both in the northern and southern parts of the province. The largest vein is the ore which occurs at Ali in Kucha with a reserve of nearly three million metric tons and a content of thirty percent. It is specularite ore. There is another specularite ore deposit in the hills west of Urumchi. It has a reserve of 750,000 metric tons with a content of twenty-five to forty percent. Other iron ore deposits are found at Pai-cheng, Chang-chi, Fu-yllan, and Ta-cheng. However, the vein of Khara Balgasun mountain near Turfan is historically the best known to the Chinese. The iron mines at Kizil near Yarkand are also of high quality. Extensive iron beds are also reported at Yengi Hissar and in the Ili valley. At present, iron ore is mined mainly in Kashgar. Before World War II, there were some four or five smelting furnaces in operation with a yearly production of 150 tons or iron. Now, according to 1955 reports, in Urumchi a steel factory is producing agricultural implements, etc. There is a factory for repairing automobiles, and one for producing machine tools. They are modest, but this does not mean that other factories, about which the press is silent, do not exist.

With regard to the distribution of iron ore in Sinkiang and the northwest as a whole, the following two tables may be found useful. (See Tables V and VI.)

b. Ferro alloys:

Tungsten, molybdenum, and nickel have been reported in the province of Sinkiang, and manganese in Kansu. With regard to their distribution and reserves very little information is available. Tungsten is produced at Chi-ka-tai, Ho-ssu-tai and Chu-li-kun, north of Wen-chuan-hsien in Sinkiang. A reserve of 8,600 metric tons is estimated for the three deposits; mechanized mining with Soviet equipment has started. Molybdenum is produced at Na-lu-kou and Pa-tu-lu-kou in Ching-ho-hsien. A total reserve of 2,000 metric tons for the former and 7,000 tons for the latter are estimated. The ore is reported to have a content of sixty-five percent WO_3. Manganese ore is found at Hsi-wan of Kan-ku Hsien and Shan-lan-men-shih of Yung-teng-hsien in Kansu. The former has a reserve of 200,000 metric tons with a content of 41.47 percent MnO_2 and the latter

[See p. 131--Analyst]

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TABLE I. Distribution of Petroleum Wells in Shensi Province.

Location	Year Drilled	Depth, meters	Past Production	Lat. & Long.
Yung-ping, 57 km. NW of Yen-ch'ang	1914-16	667	small	36.57 x 109.57
Yen-ch'ang 158.3 meters west of city's West Gate	1907-36	83-923	1-6 bbls/day	36.30 x 110.08
Fu-shih (Yenan) 4 km. NE of Fu-shih	1914-16	1,000	only show	35.31 x 108.86
Chung-pu 25 km. WSW of Huang-ling (Chung-pu)	1914-16	833 - 1,182	only show	35.12 x 109.03
Tung-kuan 22 km. NW of Tung-kuan	1914-16	933	no data	29.17 x 106.35

TABLE II. Distribution of Petroleum Wells in Kansu Province.

Location	Year Drilled	Depth, meters	Past Production	Lat. & Long.
Lao-chun-miao, Chiu-ch'uan county, 70 km. W of Chiu-ch'uan city	1943		776,076 bbls in 1942	39.46 x 97.47
Tun-huang 20 km. NW of Tun-huang city	1943	100-475		40.19 x 94.32
Shih-you-ho SW of Yü-men	1937	492 ft. to 656 ft.	20 bbls/day 35 bbls/day	39.46 x 97.33
	1944	1,400 ft.	10,000 bbls/day	
	1944	1,313 ft.		
Yü-men, near city	1944		4,000,000 gal in 1946 from the Yü-men Field	40.15 x 97.13

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TABLE IV. China's Northwest:Coal Reserve Distribution by Provinces.[1]
(Reserve in million metric tons and production in tons)

Province	Anthracite	Bituminous	Total	Production(1955)
Shensi	750	71,200	71,950	650,000
Kansu	59	997	1,656[3]	110,000 (240,000 in 1947)
Ninghsia(now belongs to Kansu)	173	284	457	140,000
Chinghai	240	584	824	40,000
Sinkiang		31,980	31,980[2]	180,000

1. Mining Report, 1945, Chinese Geological Survey, cited by Nelson Dickerman:Natural resources of China, Foreign Minerals Survey, II, No. 7, (1948) Washington D. C. U.S.Bureau of Mines and also by George B. Cressey: China's 500 Million, 1955.

2. Present coal reserve of Sinkiang is estimated at 35,040 million metric tons.

3. A new discovery of 32 million metric tons of coal in 3arly 1955 should be added to Kansu's total reserve.

TABLE V. Iron Deposits in Sinkiang Province*

Locale	Deposit	Comment
Aksu	Ko-kan-chia	two deposits not of highest quality
	Tieh-pen-erh	" " " " " "
	Ko-la-pu-la-ko	
Ching-chi	Meng-ko-tu-ling	
Fu-yüan	Shui-hsi-kou	seven furnaces installed with 600 catties pig iron capacity
Sui-ting (Ili)	So-erh-ko-ling	
Pai-cheng	Ming-pu-la-kou mtn.	mining area of each said to be less than a mile square
	T'a-erh-chi mtns.	
	Ya-se-la-min mts	
	Neng-li-ha-ta mtn	
	K'o-shih-ko-ko-pa-shih mtn.	

1: Washington S-4 (no date) 1956 AF13 Northwest China AF13 ● Sinkiang All

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TABLE V. (Continued)

Locale	Deposit	Comment
Ta-cheng(Chuguchak)	K'o-la-ta-fu-pan to Ch'erh Shan	vein 130 miles long largest in province
T'a-pan-cheng	unnamed	
Yengi Hissar	I-Ko-jih-ya-yen mtn	
	A-ha-mai-ti mtn.	

* Noris, Martin R.: Gateway to Asia, Chap. IX, pp. 113-14.

TABLE VI. Distribution of Iron Ore Reserves of N. W. China by Provinces*

(Reserve in 1000 metric tons, and production in metric tons)

Province	Proved	Estimated	Total	Percent	Production
Shensi	4,847	6,000	10,847	0.50	1,800
Kansu	2,196	310	2,486	0.10	24,000
Ninghsia	5,079	2,500	7,579	0.35	
Chinghai		5,000	5,000	0.23	
Sinkiang	47,537	1,200	48,737	2.23	

*PAI, CC: General Statement on the Mining Industry. Geological Survey of China, special Report, No. 7, Dec., 1945.

N.B. 1. The total iron ore reserve of Shensi has been raised from 0.5% to 2.3% of the nation's total. That would give it an approximate total of 50,000,000 metric tons.

2. The total iron ore reserve of Kansu has been raised to 12,600,000 metric tons.

1: Washington S-4 (no date) 1956 AF13 Northwest China AF13 Sinkiang AI1

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TABLE X. Distribution of Salt and its Production in Ningsia, Kansu and Chinghai Provinces in 1942 and 1943 (Production in metric tons) Source: Stephens, Harre E.: N. W. salt, American Embassy, Lanchow, Kansu, China, Jan. 29, 1945)

Province	Field of Deposit	Lat. & Long.	1942 Production	Total	1943 Prod.	Total
Ninghsia	Tsa-han-chih (Lake)	38.20x104.42	39,040		30,244	
	Ho-twen-chih "	39.24x104.40	9,400		12,381	
	Ya-pu-lai "		10,500		5,600	
	Chi-lan-tai "	39.40x105.43	16,200		2,089	
	Hui-on-pu (Earth)	37.28x106.41	175		750	
	Tung-hu-chih (Lake)	37.40x104.55	700		460	
	Ba-in-chih (Earth)(?)	38.18x104.15	35		254	
	Hung-yen-chih "	38.02x104.58	155		16	
				77,105		51,978
Kansu	Hsi-feng-chen(Lake)	35.45x107.28	2,700		5,004	
	Tsao-shan-chen "	35.20x107.59	1,500		2,712	
	Kao-tai (earth)	39.21x99.58	2,800		2,055	
	Chang-hsien "	34.38x104.40	1,400		1,076	
	Su-mu-shan "	38.30x103.20	500		815	
	Tang-chia-hai "(?)		330		453	
	Kan-yen-chih "		200		417	
	Yen-kuan "	34.18x105.19	420		393	
	Pai-tun-tzu "	37.30x104.05	750		367	
	Hsiao-hung-kou "	36.43x105.26	160		351	
	Ma-lien-ch'uan "	41.10 x94.47	425		347	
	Ma-chia-T'sun	36.18x103.30	430		233	
	Lin-hsia	35.34x103.14	135		215	
	Hsia-ho (Lake)	35.12x102.30	20		174	
	La'-pai (Earth)		290		112	

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TABLE X. (Continued)

Province	Field of Deposit	Lat. & Long.	1942 production	Total	1943 prod.	Total
Kansu (Continued)						
	Pei-wen (Lake)	38.50x101.14	130		104	
	Liu-chia-wan(Earth)		100		51	
	Pa-pan		45		19	
				12,335		14,898
Chinghai	Cha-chia (Lake)	36.48x 99.23	1,700		2,427	
	She-an-tang(Earth)	36.23x102.53	25		28	
				1,725		2,455
	GRAND TOTAL			91,165		69,331

TABLE XI. Distribution of Gypsum Deposits of Northwest China by Province

Province	Field of Deposit	Location
Shensi	Lin-tung	34.24x109.13
Chinghai	Hsining	36.37x101.46
Kansu	Ha-chia-tsun, Yung-teng	36.37x103.33
Sinkiang	Wen-su	41.15x79.55
	Kuche	41.43x82.54
	Pai-cheng	41.46x81.52

TABLE XII. Population Increase of the Various Regions

Major Regions	No. Places Surveyed	No. Farm Families invest'd.	Birth Rate*	Death Rate*	Natural Increase
Northwest	14	5,648	35.0	22.0	11.5
North China	26	10,816	40.2	26.6	13.6
Lower Yangtze	21	9,849	38.5	28.3	10.1
Southwest	20	5,343	46.2	35.6	10.6
Southeast	12	4,540	37.7	31.2	6.5
	93	36,196	39.3	28.2	11.1

*per 1,000

I: Washington S-4 (no date) 1956 AF13 Northwest China AF13 Sinkiang AF1

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AGRICULTURE PRODUCTION

PROVINCE	CROP (Maize, barley, oats, etc. excluded)	ACREAGE IN 1,000 MOU (1 ACRE = 6.6 MOU)					PRODUCTION IN 1,000 PICULS (1 PICUL = 2 BUSHELS OR 133 1/3 lb)				
		1938	1939	1940	1941	1942	1938	1939	1940	1941	1942
KANSU	WHEAT	8,055	8,359	8,434	8,330	8,247	10,331	9,424	8,953	8,411	9,077
	COTTON (lint)	123	141	167	202		37	41	51	57	
	RICE (not glutinous)	50	66	72	69		127	152	141	157	
	MILLET (excluding proso millet)	2,326	2,126	1,967	1,947		3,667	2,949	,510	2,817	
	SWEET POTATOES	116	182	184	184		1,399	1,273	1,236	1,214	
NINGHSIA	WHEAT	337	360	379	396	409	394	558	514	522	594
	COTTON		7	8	8			1	1		
	RICE	79	83	91	95		104	108	77	102	
	MILLET	220	198	227	226		341	329	341	359	

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AGRICULTURE PRODUCTION

PROVINCE	CROP	ACREAGE IN 1,000 MOU (1 ACRE = 6.6 MOU)					PRODUCTION IN 1,000 PICULS (1 PICUL = 2 BUSHELS OR 133 1/3 LB)				
		1938	1939	1940	1941	1942	1938	1939	1940	1941	1942
CHINGHAI											
	WHEAT	2,444	2,356	2,319	2,427	2,409	3,501	4,096	3,030	3,641	3,797
	MILLET	260	273	215	231		254	447	205	285	
SHENSI	WHEAT	14,853	15,827	16,642	17,034	18,060	28,134	23,908	22,057	16,876	23,373
	COTTON	3,895	3,187	3,671	3,590		997	862	670	945	
	RICE	1,090	1,026	887	789		3,236	3,212	1,965	1,960	
	MILLET	3,363	2,975	2,698	2,678		3,879	4,163	3,226	3,658	
	POTATOES	353	342	336	337		3,759	3,132	2,818	2,530	

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following page 642 (a)

241 433 Oil seed bearing crops are also raised but in small quantities compared with the output from other parts of China. One reason for this is the lack of markets with a resultant slight incentive to expand and promote the planting of oil seed bearing crops. The following figures are in 1,000 metric tons and 1,000 hectares and are an average for the years 1931-1939. (T. H. Shen. pp. 248-249.)

Province	Soybean	Peanuts	Sesame	Cottonseed	Rapeseed
Ninghsia	2	-	negligible	-	1
Chinghai	-	-	-	-	21
Kansu	38	negligible	negligible	5	25
Shensi	46	12	17	86	51

Acreage in 1,000 hectares (1 hectare = 2.471 acres)

Province	Soybean	Peanuts	Sesame	Cottonseed	Rapeseed
Ninghsia	2	-	negligible	-	31
Chinghai	2	-	-	-	34
Kansu	38	negligible	1	13	54
Shensi	56	9	38	267	141

Besides the geographical and climatic limitations to farming, insects, diseases, and rodents seriously limit crop production. The black smut of wheat, barley, millet, proso-millet, and kaoliang is reported to cause losses of from twenty to eighty per cent of the crops. Yellow rust of wheat causes a loss of twenty per cent. Leaf cur of tobacco at Lanchow in Kansu decreases the yield and affects the quality of the crop. A kind of marmot, locally (136) (731) called the "yellow rat" was a great menace during the drought years 1928-1931.

241 731 The region is frequently subject to earthquakes, droughts, and famines which make farming extremely precarious. Calamities destroyed twenty per cent or more of the crop on the average annually during the period 1904-1929 and in 1930 a great famine swept through the region. Yet according to the population statistics and the total land area, there is no problem of population pressure, at least relatively. In addition, there is the possibility of increasing returns from the land under cultivation if existent farming techniques were improved and innovations introduced, i.e., use of fertilizer, better irrigation facilities, better seeds, etc.

241 489 But the biggest factors preventing increased returns in the Northwest have been the absence of transport facilities and financial assistance; e.g., the inability of the Nationalist Government to provide extensive loans at low interest rates. J. L. Buck points out that the absence of transport and communications to link the Northwest with other parts of China has accounted for the very small quantities of livestock and agricultural produce which have been exported and has hindered the development of local markets. With the growth of transportation, communications, better market facilities, etc., the possibility of increasing returns to agri-

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241 489 culture on land already under cultivation might be realized.

The Nationalist Government gave no financial assistance of 241 654 175 any magnitude until the Second World War. Finally, when it was forced to retreat into the remote areas of Southwest China, the government had to depend largely on the Northwest for food and revenue (agricultural taxes). The Nationalist Government became more interested in the agricultural development of the Northwest and some experimental stations were set up in Kansu. Government assistance, however, was directed primarily to farmers engaged in producing crops for the war effort; e.g., cotton.

241 175 [435] After 1938, the price index for farm products rose rapidly in all four provinces and the purchasing power of the farmers began to grow. After 1940, food prices rose speedily and the farmers had more money than in prewar days. By examination of the [433] data of the war years as to whether farmers undertook to increase their scale of production and thereby extend cultivation, we can say that there was little increase in extensive farming (except in the case of Ninghsia) and that the output increases during this period can be attributed (wheat especially) largely to intensive farming.

241 423 Turning to the land tenure system, the percentage of farmers who are owners, partowners and tenants, as determined by a land survey undertaken by J. L. Buck, reveals that on the average most of the farmers own their own plots of land. The following [175] chart, compiled from data collected by Buck in 1933 on a sample basis gives us the landholding breakdown. In Farm Survey (a), [427] farmers who own their farmsteads but who rent all their crop land are classified as tenants rather than as partowners. When compared to the agricultural survey (b), (in this survey, 236 localities, 146 hsien, and twenty provinces in China were examined), the results in both cases are similar except in the case of Chinghai where the few samples taken disallows an accurate breakdown. (Land Utilization in China p. 57.)

241 423 427 Percentage of farmers who are owners, partowners and tenants

Province & local	Farm Survey (a)			Agricultural Survey (b)		
Kansu	owner	part-owner	tenant	owner	part-owner	tenant
171 Kao-lan	86.0	11.0	3.0	60.0	15.0	25.0
Lin-hsia	-	-	-	60.0	10.0	30.0
162 Wu-wei	96.0	4.0	0	60.0	25.0	15.0
Yung-teng	-	-	-	35.0	5.0	60.0
Ping-liang	82.0	17.0	1.0	85.0	10.0	5.0
Tien-shu	62.0	21.0	17.0	50.0	30.0	20.0
Average	78.6	14.2	7.2	58.4	15.8	25.8
Ninghsia	98.0	2.0	0	96.0	1.0	3.0
Chinghai						
Hwang-yau	67.3	22.7	10.0	-		-

427 Agricultural Research Bureau. It is doubtful whether the results
175 have changed greatly since then. The following are the 1934 findings:

Province	No. of Hsien Reported	Cash Rent	Crop Rent	Share Rent
Ninghsia	5	46.1	18.5	35.4
Chinghai	7	10.6	53.8	35.6
Kansu	21	14.3	51.0	34.5
Shensi	51	15.1	59.0	25.9

(China Handbook 1937-1943 p. 607.)

3. Livestock

175 The chief livestock are sheep, oxen, donkeys, mules, and
231 horses. The following chart gives the number of livestock in the four areas as of March, 1937, in thousand head. (T. H. Shen p. 289. Notable omissions in this table are yak and camel. There is a fairly large number of yak in Chinghai and camel in Ninghsia and Chinghai.) The next series of charts gives the livestock number for the war years.

Province	Horses	Donkeys	Mules	Cattle	Water Buffalo	Sheep	Goats
Ninghsia	17	44	8	39	-	739	225
Chinghai	50	79	26	89	-	359	150
Kansu	151	581	160	802	1	2,625	1,646
Shensi	128	359	131	914	7	375	657

	Pigs	Chickens	Geese	Ducks	Total
Ninghsia	52	186	2	6	1,318
Chinghai	74	312	2	3	1,194
Kansu	984	3,212	53	229	10,544
Shensi	967	2,747	7	99	6,491
Total Number of Livestock (in thousand head)					19,547

The total number of livestock in China for 1937, excluding Sinkiang, Tibet, Outer Mongolia, Sikang, and Manchuria, was 445,078 animals. This meant that the Northwest possessed about four per cent of all livestock in China for the year 1937.

231 As shown by the chart, one of the most important animals is
236 sheep; wool is exported from the region. In the Northwest the
43 cost of wool production is high in relation to selling prices. Sheep farmers operate at a deficit due chiefly to the low production of wool per head of sheep and to the high annual death loss from starvation, disease, and other causes, whereas in other sheep and wool producing countries the income from wool is at least forty per cent of total income, in the Northwest, the low production of wool per head of sheep allows only an income of twenty per cent. The esti-
236 mated annual loss of sheep is around ten per cent. Of the total
433 amount of wool produced in China from 1941-1945, the five provinces of the Northwest, including Suiyuan, produced 69.7 per cent.

236 (T. H. Shen, p. 326.) The following is in 1,000 metric tons:
433

Province	Sheep Wool	Camel Hair	Cashmere
Kansu	3,611	180	30
Ninghsia	1,846	299	92
Chinghai	4,840	60	-
Sinkiang	12,853	22	10
Total	23,150	561	132

241 In Chinghai and elsewhere in the region fertilizer is scarce and the thick sod on the uncultivated hilltops is burnt in piles to help meet the fertilizer requirements of the fields below. The
311 following is a description of the principle livestock raising area
233 in Kansu and Chinghai. "The pasture land in Kansu and in the agricultural part of Chinghai is mostly the hill land far away from
[423] the cultivated fields and villages. It is not owned by farmers individually or collectively. It is public land. The right to graze these pastures is determined by the natural location of the villages in relation to these hills rather than by law. The nearest villages have more chance to use it. Sometimes one finds several villages grazing their sheep on the same hills without trouble. But if too many villages use the same pasture a definite agreement is made between the villages to limit certain villages to particular pastures. Such occasions rarely occur because the increase in sheep is naturally in accordance with the amount of pasture available. It is only in time of severe drought that the pastures are overstocked.

311 "The pasture of nomadic Chinghai (formerly a part of Tibet) is
423 also public land but different tribes and clans have the exclusive
233 right to use only such land as has been allotted to them by the government or by tradition. Within the boundaries of a certain tribe the pasture is open to all its member families, but no family owns any particular lot. There is no fencing or walls.

311 "The condition of these pastures is determined by annual rain-
233 fall. More rain and snow assure better grass. No human effort, such as seeding, manuring, irrigation or drainage is ever applied." (Buck, Land Utilization p. 176.)

4. Forestry

313 The following chart indicates the percentage of forest land for the region.

Province	Percentage of land in Forest
Kansu	6.0
Ninghsia	4.0
Shensi	16.0
Chinghai	2.0

If we leave out Shensi as a section of the Northwest, as George B. Cressy does, the Northwest is reported to have only one twentieth as much standing timber as the Northeast region (Heilungkiang, Kirin, Liaoning), or 197,429,814 cubic meters, which is located

313 mostly in Kansu. In 1945, large-scale afforestation projects were [185] undertaken by the provincial government, especially in Ninghsia. The exceptional fact about these projects was that the young seedlings were properly cared for and did not die as so frequently occurred in other afforestation schemes. The Ninghsia projects were, of course, taken over by the Chinese Communists.

311 In the loess plateau region, between the great wall and the 139 mountains, and between the Tibetan Highlands on the West and the Yellow plain to the East, there is almost no forest cover. 313 Forests are found only in the more inaccessible areas or in temple groves. Their disappearance is related partly to needs for lumber but also to the introduction of new crops, such as corn and Irish potatoes, which will grow on the upper slopes. Many hills [241] were burned over in order to clear the land for a cultivation [134] which could last for only a few years until erosion swept away the last trace of soil.

5. The border region

*175 In 1937, the Chinese Communists occupied the northern portion *668 of Shensi as well as the fringe areas of Chinghai, Kansu, and • 433 Ninghsia. This region was regarded as the Shensi, Kansu, Ninghsia, Chinghai border region and was developed by the Communists [437] into a relatively self-sufficient area. When they were able, they exchanged surpluses such as oil, salt, herbs, skin and wool for articles which they could not as yet produce in sufficient quantity.

*175 The Communists carried out land reform as soon as they were *668 fully entrenched in power. Large land holdings were cut up and [423] parcelled out to peasants with little or no land. Rents and interest rates were reduced, efforts were made to extend cultivation, increase the number of draft animals, and develop labor cooperation beyond family circles.

*175 In a study by Yung-ying Hsü, issued by the Institute of Pacific *668 Relations, there is a summary of the economy and military status 433 of this region. There are numerous statistics to indicate increases in production of certain crops. These are the only available statistics we have for the region during this period, and the figures seem to indicate that despite the excessive expenditures for the maintenance of an army and guerilla forces as well as a governing body and administration, progress was made in raising the level of agriculture. However, by 1943, trade figures for the region indicate an imbalance of payments and a drain of currency from the region indicating that increasing military commitments were absorbing the created wealth of the region.

13 D. Conclusion

241 We may sum up the obstacles to agricultural development as 311 follows: geographic and climatic problems are the most serious. The amount of cultivable land that can be reclaimed and used for

13 241 311 farming purposes is not great. Deserts, high mountains, and loess covered plateaux limit the expansion of further cultivation. The margin of cultivation can be extended but not without the great cost involved in reclaiming land and constructing irrigation networks. The dearth of rainfall in many sections of the Northwest and the shortness of the growing season also handicap farming. The destruction of wooded areas and gradual ruination of the top soil in the past has resulted in severe erosion and the elimination of important organic substances necessary for soil fertility.

241 433 489 [438] The absence of transport and communications has encouraged greater subsistence farming and less production for markets. The inability of the farmer to sell his surplus and obtain a profitable return so that he could increase production or practice more diversified farming, has stunted the growth of internal markets in the Northwest region. The inability of the Nationalist Government to link the internal markets of the Northwest to China Proper by a series of transport and communication systems, and provide for a free flow of capital, as well as short term low interest rate loans, has seriously retarded the development of agriculture.

241 311 [435] [433] We have seen from our data that while the above problems are quite serious, there exists no real problem of tenantry or population pressure on the land. Furthermore, given high prices for their goods, as occurred during the second world war, the farmers of the Northwest, in some instances, could by more intensive farming methods raise the level of output significantly.

241 311 433 Both T. H. Shen and J. L. Buck (agronomists) feel that if there were some restoration of fertility to the land in terms of resodding and planting root crops, and if a large portion of the hilly sections could be turned over to the raising of livestock, certain sections of the Northwest would come to have a distinct comparative advantage economically so far as the production of livestock is concerned, and greater incomes would be forthcoming to the rural inhabitants (this assumes such products could be cheaply exported and necessitates a proper balance between farming and livestock raising).

241 433 One of the most vital factors not yet mentioned, is the necessity for constructing irrigation works and to further extend those already in existence. This entails also the building of large reservoirs; the small magnitude of irrigation works is one of the greatest stumbling blocks to the development of areas like Sinkiang and Kansu, since most of the land there is desert.

However, to carry out the above projects which would overcome some of the obstacles to the expansion of agricultural production, it would be necessary that large capital outlays be available. Serious consideration of greatly expanding the area under cultivation might, however, lead to higher costs than any administration could bear, and in turn result in diminishing returns.

241 433 Such costs could be avoided if intensive farming measures were emphasized, internal markets developed, and these in turn linked to China through a network of transport.

II. The Communist Period

241 *668 A. General Outline of Communist Policy for Agriculture in the Northwest

The pattern of Chinese Communist agricultural policy for this region is similar to what has emerged in China. The only differences have been in the timing and pace of reform policies which stem from the varying political, economic, and geographic conditions of the Northwest.

[423] When the People's Liberation Army had occupied the Northwest, land reform on a regional scale commenced. By 1951 land reform was completed in areas with an agricultural population of seven million; rents were reduced in areas with an agricultural population of ten million. (Current Background, No. 141, November 27, 1951. General Chang Chih-chung on Development in the 241 Northwest. p. 14.) Immediately upon completion of the land *668 reform, concerted efforts were launched to increase the agricul- 474 tural and livestock production of the Northwest through coopera- 476 tivization; by establishing mutual aid teams and then combining 433 these into agr cultural producer cooperatives where land, farm implements, and livestock are pooled. The ultimate objective of the Chinese Communists is to cooperativize all agriculture in the Northwest, and through a network of such cooperatives, concentrate on raising productivity by expanding cultivation, sowing with better types of seeds, and using more advanced tools and farming methods. Cooperativization is taking place in villages and oases, and steps have been taken to establish state farms in regions where there are large tracts of reclaimed land.

241 Survey teams were sent out to determine what land might be 311 reclaimed and cultivated. Upon the estimates of these teams, 185 units of the army went out to reclaim the land. Because most of *668 the land surveyed was desert, the construction and extension of irrigation works, the building of reservoirs, the setting up of irrigation pumps to pump the water through newly-dug canals over the desert had to begin at almost the same time.

311 Some progress has been made in extending cultivation and 185 planting cotton by reclaiming waste land. Communist planning is *668 ambitious and in future five year plans, they intend to make the 288 province of Shensi a textile processing area to which Sinkiang 439 and other areas in the Northwest will ship their cotton. In this [248] way, it is hoped to ultimately make the entire region self-sufficient in textile production. Textile factories are being erected in Sinkiang too for the purpose of processing cotton produced there, and it is already reported that some cotton cloth is being shipped to the U.S.S.R.

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452 474 *668 In the field of credit financing, purchasing and marketing, extensive efforts have been underway to place these activities under the control of cooperatives specifically erected and designed to extend State control over the rural areas. These co-ops are designed to assist in agricultural planning and to assure the realization of annual output quotas. Credit cooperatives are closely coordinated with the development of agricultural producer cooperatives in order to provide them with funds to develop and simultaneously to absorb any liquid savings that have accrued among these co-ops. For the purpose of State purchasing and marketing, cooperatives have been set up which survey individual households to determine household consumption and output. Frequently, advance purchases of expected agricultural surpluses are made by these co-ops. All surpluses which can be purchased by State marketing and supply co-ops are channeled through State apparatus to where they can be used most efficiently.

654 232 *668 [476] The State has taken measures to increase livestock production by first attempting to set up mutual aid teams among the pastoral people and sending specially trained teams into the pastoral areas to immunize animals, teach the herders better care of their stock to prevent loss of animals, and conduct breeding experiments to improve the quality of livestock. Superior types of animals from the Soviet Union have been imported on some occasions to be bred with native stock.

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242 *668 [177] Pests, locusts, and animal diseases have always been a scourge in this region. The State has undertaken to acquire technicians and airplanes from the U.S.S.R. to spray regions where the threat of locusts has become serious. Insecticide has been distributed throughout the lower level agricultural co-ops and campaigns have been conducted among the peasants to eliminate plant and animal diseases.

313 *668 Teams have been sent out to survey forested portions of the region and to determine what measures might be taken to expand existent forest reserves, plant saplings, establish nurseries and carry out large-scale afforestation to prevent erosion.

241 *668 [433] [242] [474] These have been the general measures taken by the Chinese Communists so far to develop agriculture in this portion of the country. Some successes have been scored; e.g., in increasing the number of livestock and higher crop yields per acre by the introduction of better procedures of livestock care and farming. However, the program of organizing the peasantry into co-ops to achieve similar results, has not been successful in every instance.

[918] Bandits and dissatisfied portions of the minorities who did not welcome the Communists have been quite active in disrupting their programs. As the years in the first five year plan pass, the plan-

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668 training takes time before these technicians, accountants, etc.,
241 can go out and organize co-ops, operate them efficiently, and train other native cadres. The 1955 plan calls for the training of 600 technical cadres for the "Centers for Promoting Agricultural Techniques," for the training of 500 in-office cadres by rotation, and for the training of 4,190 accountants and 5,337 technicians for agricultural producer cooperatives.

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668 An additional problem (which will be mentioned at this point
657 rather than repeated when each province of the Northwest is dis-
736 cussed) concerns the soldiers' dependents in the region and the
474 plight of discharged army personnel. The State has been particu-
729 larly upset by the lack of participation of these groups in coopera-
[464] tivization and special attention is now being devoted to utilize this source of manpower. Since dependents of servicement are given certain State stipends, in food, many of them feel that by joining a cooperative they will be deprived of this compensation. Because 1955 was a critical year in the Five Year Plan, the pace of erecting new co-ops and consolidating the older ones has been increased. Now many of the dependents and demobilized soldiers who were organized in these co-ops have backed out of them and many of these co-ops have, therefore, never been consolidated. Another problem in the co-ops is that the members do not want partly disabled or female workers, and, on the other hand, many dependents feel that the State should provide for them. (No. 1004, March 10, 1955, Supplements. "Actively Organizing Servicemen's Dependents for Mutual Aid and Co-op Work." U.S. Consulate General. Survey of China Mainland Press.) The proper allocation of labor in the Northwest remains a critical problem.

2. Chinghai

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*175 By December, 1954, 575 agricultural producer co-ops had
*668 been formed, and this constituted 9.12 per cent of all households.
474 The number of mutual aid co-ops was not given but it was reported
452 that 69.7 per cent of all households had been cooperativized to
[476] some extent. There were also 159 supply and marketing coopera-tives, 148 credit cooperatives, and 12 handicraft producer co-ops. Long term low interest loans have been extended to poor peasants to encourage them to join farming co-ops. The first allocation totalled over 138 million yuan (U.S. $5,598). The interest rate is 0.4 per cent monthly and the repayment period is spread over five years. Besides these individual loans to poor peasants, there have been additional ones to enable the peasants to build small water conservancy works and buy new types of farm tools. All totalled, state loans amounted to more than 750 million yuan (U.S. $30,426) for 1955. (Far Eastern Economic Review. Dec. 1, 1955. pp. 686-87.)

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*668 In a provincial report by Chan Kuo-sheng, Secretary General
241 of the Chinghai Provincial People's Government, on work
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conditions in 1954 and tasks for 1955, it was stated that 2,000 modern plows were now in use, and 67,245 mou (10,221 acres) of dry fields have been converted into water fields, while adequate water supply has also been made available to 28,597 mou (4,347 acres) of original water fields. It was planned to have 746 agricultural producer co-ops in operation in 1955, with an area of 5,115,000 mou (777,480 acres) to be sowed with a planned output for the province of 853,350,948 carries (42,337,207 bushels). An area of 500,000 mou (76,000 acres) is to be sown for oil bearing crops with a planned output of 10 million catties (24,137 metric tons). There is so little data for the pre-Communist and Communist period that it is impossible to construct a table. The only comparison that can be made is in oil seed bearing crops (and livestock which follows). The pre-Communist figures give an average of 21,000 metric tons for the years 1931-1939. Since it is planned to increase output to 24,137 metric tons, this will mean an increase of 3,137 metric tons; not a very significant increase.

In Chinghai there is a population of over one million; sixty per cent belong to the Tibetan, Mongolian, and Hui minority nationalities. The Communists reported that the province's seven million head of livestock in 1951 was increased to over twelve million in 1954 and it is planned that 20 million will be raised by 1957. (Pre-war and war year statistics list the total livestock at little over one million. Communists claims of sevenfold and twelvefold increases in this case, ought to be accepted with reservations. However, because the base year (one million) is so low, it is possible to have rapid increases of a relatively large magnitude.) The People's Government issued loans to husbandmen engaged in animal husbandry totalling 6,555,000,000 yuan (U.S. $266,365) in 1954. Steps were taken in cutting and storing grass for winter, repairing sheds and enclosures, and building winter and spring shelters to protect livestock during the cold season. It was also reported that in 1954, goals in planned purchases of cattle and sheep were achieved, and this produced definite contributions in support of the industrial construction of the State. At the same time, these activities served to educate the people in patriotism and mutual aid.

Tasks for the future were to continue to raise agricultural production based on the mutual aid and producer co-ops and to develop supply and marketing co-ops, credit co-ops, and arrange for markets in rural areas to promote interflow of supplies and planned purchase and planned supply of food. Care was to be taken to preserve livestock and to continue afforestation schemes. It was reported that within the province some 38,900 mou (5,913 acres) had been afforestated in 1954 and the number of fires greatly reduced.

*668 578 of the nationalization of cattle and sheep." And again, "there are also many counter-revolutionaries who exploit religion for sabotage and such instances are often found in the minorities areas. In certain pastoral areas in Chinghai, for instance, the discovery of heavenly edicts was rumored. These documents stated that the world would soon be destroyed, and the people meet with severe calamities and suffering." (Current Background. No. 356, September 12, 1955.)

Rumors and religious sects are apparently some of the more concrete forms peasant resistance has taken toward collectivization; among the various minority groups, such resistance can greatly hinder Communist agricultural planning.

*668 232 242 No doubt there is much room for improvement in the pastoral sections of Chinghai, simply by the introduction of better types of breeding techniques and by showing the nationality groups the proper care of their herds during the winter season. In addition, more irrigation and better farming procedures ought to stimulate [474] greater productivity. But the central problem will remain: whether cooperative organizations will yield benefits or whether they will reduce peasant incentive and thereby, in the long run, weaken agricultural development of the area.

3. Shensi

*668 ● 433 *175 The following statistics are from a report by Hsieh Huai-teh, Director of the Department of Agriculture and Forestry for the Shensi Provincial People's Government on 1954 conditions and tasks for 1955. (No. 1014, March 24, 1955. Supplement. Survey of Chinese Mainland Press.) By the end of 1954, the total output of food for the province was 10,091,790,000 catties (201,835,800 bushels); cotton was around 1,800,000 piculs (119,970 tons) as compared to 65,802 for 1938 (nearly a twofold increase); but insufficient attention was paid to the planting of oil bearing crops in various sections and the total output amounted to only around 117 million catties (70,571 metric tons) as compared to the pre-Communist period average for the years 1931-1939, 212,000 metric tons.

*668 241 474 *175 By 1954, 59.4 per cent of the peasant households in the province were organized into some form of co-op, and 13.22 per cent of them had joined permanent mutual aid teams. There were 3,048 agricultural producer cooperatives including one collective farm. All together, around 847 villages have virtually become cooperativized. In Shensi there are a total of seventeen

*668 *175 241 312 State irrigation canals which have enlarged the irrigation area by 44,112 mou (6,705 acres). The number of wells, water wheels and pipe wells have been increased, and the total area irrigated enlarged by more than 192,000 mou (29,184 acres), amounting to 86.7 per cent of the plan for 1954. The total irrigated area in the province is now over 5,623,290 mou (854,740 acres).

*668 231 The number of large domestic animals increased to over 2,586,000, that of sheep (including goats) to over 3,003,500 and that of pigs to over 1,825,000. There are four state livestock farms. Compared to pre-war figures, domestic animals and pigs increased twofold while sheep increased nearly twelvefold.

*668 313 *175 In addition, a campaign for afforestation and forest protection was launched so that in northern Shensi by the end of 1954, some 280,000 mou (42,560 acres) had been afforestated by the State. During 1954, 206,900 mou (31,449 acres) were afforested, nurseries occupied 4,900 mou (754 acres), 856,100 mou (130,127 acres) of wooded wilderness were surveyed, and new forest developments were carried out on 61,500 mou (9,348 acres).

*668 185 • 433 [241] [231] By 1955 it is planned to increase the grain acreage so that it will be 70,150,000 mou (10,662,800 acres) and the total output 1,970,000 piculs (13,002 tons). Oil bearing crops will be increased and plans to develop animal husbandry are underway so that there will be 2,790,000 large domestic animals, 2,008,000 pigs, and 3,515,000 goats and sheep to relieve the shortage of meat and dairy products in the markets. In 1955, the area to be [313] afforested will be 280,000 mou (42,424 acres) and 7,000 mou (1,064 acres) will be used for nurseries. Tea plantations will be strengthened and growing of vegetables in the suburbs of cities will be promoted. All this will be accomplished by increasing *668 the pace of cooperativization for 1955; seventy-five per cent of 185 all households will be cooperativized and agricultural producer [474] co-ops will total 21,000. A spring campaign will be launched also [241] to enlarge the sowing area and improve stock breeding, and efforts will be made to strengthen leadership over production in hilly regions; technical reforms will be continued and stepped up. Finally, satisfactory supplies of consumer and producer goods will be given to the peasant. The latter (producer goods) include farm implements, fertilizers, draft animals, insecticides, spraying equipment and good seeds.

Some of the defects that crop up in Shensi are particularly serious since it is one of the most advanced provinces in the Northwest, from the standpoint of the large number of co-ops. The following obstacles have arisen to obstruct the campaign to step up cooperativization. So-called rural "capitalist forces" and [578] rumors fabricated by counter-revolutionary elements have brought uneasiness to the middle peasants. Consequently, peasants have sold or slaughtered their farm animals, felled trees, rushed to buy consumer goods, squandered their money. This state of affairs is supposed to have resulted because the correct policy of solidifying poor and middle peasants has not been carried out. Commandism among the cadres is reported to prevail and this has had the over-all result of slowing down cooperativization.

000 So-called counter-revolutionary elements were reported to

668 So-called counter-revolutionary elements were reported to
668 have operated in several provinces. In Hopei, the public security
669 organs uncovered several cases of "I-kuan-tao" sabotage. The
578 "I-kuan-tao" are supposed to be remnants of KMT officers and several sects like the "Golden Line". These elements had operated in Kansu, Shensi, and Inner Mongolia. They usually recruited former prisoners who had been in Chinese Communist prisons. These elements were supposed to have wormed their way into economic enterprises, rural mutual aid, and co-ops to engage in sabotage. They are blamed for fabricating rumors, and during the unified purchase of grain, they are supposed to have instigated the peasants to put aside grain and not send their surplus to the State.

668 Another major problem is the assessment of cotton output and
659 the fixing of cotton purchase quotas. What the state does with
433 commercial crops, as it does with nearly all rural produce now,
248 is to send teams out to each household and estimate what the output, consumption, and surplus will be. The amount to be purchased is determined on the basis of these findings. Once this data is collected and examined, other items can be planned such as the amount of thread to be spun, the textile output that will result, and how much cotton cloth can be made available to the rural areas. It is very important, then, that the initial surveys to determine the available surplus that may be purchased by the State be correct in order to fulfill other portions of the plan. If incorrect estimates are made; i.e., lower estimates of output allowing peasants to retain excessive quantities of cotton, this would promote the growth of rural capitalist elements who might carry on speculative activities by selling their surplus cotton at a higher price than offered by the State. The Chinese Communists blamed two factors for incorrect assessments of cotton output; the incorrect ideological approach of cadres and their poor survey methods. In the latter case, some cadres, because they were unpopular among the peasants, thought it advisable to make slightly lower estimates of cotton output. In other villages, local cadres wished, by making lower estimates, to keep an extra supply of cotton for themselves or for their relatives and neighbors. In regard to defective working methods, the cadres did not carry out their estimation of output by first propagating Communist policy and mobilizing the masses; they made investigations without the assistance of the peasants and encountered difficulty in deriving the true output.

If inaccurate estimates of peasants' cotton production are made, it will also have a direct effect on peasants activity for mutual aid and cooperation and will hinder the unity between organized and individual peasants. It seems that the difficulties of estimating cotton output were widespread in Shensi and had given rise to peasant resistance of Communist agricultural

policies. Such resistance is revealed in instances where wheat fields have been enlarged at the expense of cotton cultivation. Any failure to carry out the State's purchasing plans correctly then, will "undermine the prestige of the party and of state policies, encourage spontaneous capitalist tendencies among the peasants, and throw State plans into confusion." (Survey of China Mainland Press. No. 971. Supplement, January 19, 1955. "Make Accurate Estimates of Cotton Output and Fix Purchase Quotas.") Since the publication of this article on estimating cotton output and fixing purchase quotas, Peking has encouraged the "three fix policy" which is a measure designed to overcome food and agricultural raw material shortages in order to meet the planned targets set by the State. This policy provides for every administrative body throughout China to fix the production, fix the purchase of output, and fix the marketing of this output for the agricultural sectors of the Chinese economy. Undoubtedly this policy has been rigorously applied to the Northwest. Information is not available, however, as to whether the "three fix policy" has solved the above problems.

4. Kansu

The Communists have made strenuous efforts to restore Kansu to its former prosperity (in the days of the old Silk Road to Europe Kansu was a fertile and prosperous region). The plan to build Lanchow, the capital, into an industrial base safely removed from the seac oast, the opening of the Lanchow-Sinkiang Railway, and the extensive geological surveys for minerals and oil, indicate recent attempts to do this. On March 14, 1956, Deputy K'o Shih-king reported on the province's five year plan. Only information pertaining to agricultural progress and policy will be considered. The total output of grain and cotton in 1956 will be 10,350 million catties (207 million bushels) and 250,000 piculs (16,662 tons) respectively, representing 124.42 per cent (or 6,882,750 tons of grain) and 281.87 per cent of the quotas set for 1957 in the first five year plan. Afforestation will be carried out over an area of 5,300,000 mou (806,061 acres). (Union Research Service. Vol. 3, No. 3, April 10, 1956. p. 40.)

A comparison of Communist output figures with those of the pre-Communist period is difficult. Since we cannot consider wheat only as grain (grain in this case would include corn, barley, millet, etc.) We possess no figures for oil seed bearing crops for 1956. However, for cotton, where Communist resources have been invested to expand cotton production and output, the 1956 figure of 16,662 tons as compared with the 1941 high of 3,712 tons represents around a fourfold increase.

The Chinese Communists predict that the vast areas of wasteland in Kansu will be transformed into cotton fields soon. Experts have been experimenting, it is reported, to select the most

*668 241 474 185 [651] and coordinate all rural activities toward the fulfillment of Chinese Communist agrarian policy: complete cooperativization of agriculture and the assurance of a steady flow of food and raw materials through fixed purchase of produce. (The problem of agricultural taxes in the Northwest has not been mentioned so far. The Communists have not reported any reduction of agricultural taxes, or what the average tax rates in the Northwest are.) They have a system of cooperatives at the basic production levels. Though cooperativization has taken place slowly because of the peculiar conditions of many areas in the last six years, it is expected that once some nucleus of control has been established in the rural areas in the form of permanent mutual aid cooperatives and producer cooperatives, rapid cooperativization will take place, to embrace, ultimately, all rural inhabitants.

*668 563 [404] In the national minority area, the Chinese Communists have proceeded slowly, so far, in their attempts to organize agricultural and pastoral activities. The problem of different national minority groups has been one of the principal stumbling blocks in the creation of lower level co-ops, and will undoubtedly pose a barrier to rapid cooperativization.

*668 241 654 452 Secondly, the State has been able to provide only a small supply of farm implements and credit. Shortages in China and the difficulties of transportation undoubtedly account for this. It is questionable whether these shortages can be overcome in the next few years, but when they are, new farm tools and sufficient credit should account for significant output increases.

*668 241 433 Thirdly, one of the principal ways the Communists have attempted to increase output in the Northwest has been through extensive farming rather than through intensive means. They have done this by using vast amounts of labor, particularly military, to reclaim desert wastes, build irrigation works, and construct state farms to manage the reclaimed area. Evidence of this is most striking in Sinkiang and Kansu. Although Chinghai and Shensi with their hills and valleys limit extensive farming procedures, cultivation has been extended wherever possible. Because of the shortage of fertilizer and tools the Chinese Communists have been unable to promote intensive farming on a scale that would raise output per acre significantly. Instead, they have had to resort to expanding cultivation, that is, extensive farming, to obtain the desired increases.

*668 241 231 433 Finally, it is clearly evident that in all parts of the Northwest, with the exception of Chinghai, there has been a general neglect in promoting livestock production and instead an all-out effort to increase the planting and extension of cultivation of wheat, cotton, and oil seed bearing crops. This program differs radically from policy measures suggested by Western agronomists, i.e., J.L. Buck and T.H. Shen who advocated the restoration of fertility to

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*668 241 231 433 to the soil by planting grass, resodding, etc., and encouraging the production of livestock. The reason for Chinese Communist policy could be that wheat, cotton, and oil seed bearing crops (these are the only three types of crops ever mentioned in Chinese Communist statistics) have priority over everything else as these crops are urgently needed in other parts of China as well as to sustain population increase and industrial construction in the Northwest.

*668 241 433 It is difficult to forecast prospective agricultural development in the Northwest. The Communists have demonstrated that they are intensely interested in developing the region and they have provided capital, when available, and vast amounts of labor to reclaim land, construct irrigation systems, and build water reservoirs. However, one gets the impression from reviewing past achievements and future goals that the Communists are depending largely on organisational changes in agriculture to bring them the desired output increases. When new targets are established, they are to be realized not by state financial or technical assistance, but through greater exertion on the part of the peasantry, more closely organized planning, better utilization of resources, and through cooperative endeavor and labor emulation.

At this stage of development, the State has few resources that it can divert to the Northwest to aid in the development of agriculture. It is forced therefore to rely solely on the production relationships already existent there and reorganise these relationships when able, to make for increased productivity. We have already cited the difficulties the Communists have encountered in their attempts to reorganize agriculture. And it has been strongly suggested that as planning becomes more intricate, and as more technicians and planners are required, the problems will multiply. One link in the entire chain of planning has only to break and large sections of the economy would be disrupted. When output increases are as vital and necessary as they are now, and the demand for greater food supplies increases, the burden on agriculture will become heavier.

It is questionable whether any increases in food production, i.e., wheat, rice, maize, barley, millet, will be of an amount sufficient to be exported to China Proper. Instead, output increases will be required to feed the expanding population of the Northwest; the recent efforts to expand the production of cotton and oil seed bearing crops by bringing additional land under cultivation for the planting of these commercial crops, may, over a period of time, yield quantities sufficient to supply the textile processing mills the Communists are planning to construct. There is a possibility also that livestock increases and the by-products from livestock, i.e., wool, meat, etc., will be of sufficient supply to be exported to other parts of China. However, consider-

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*668 241 • 433 able time will have to elapse before there can be the proper processing and handling of such by-products.

During the next five to eight years, at least, it is questionable whether the Northwest, from an agricultural standpoint, can contribute significantly to the industrialization program being enacted on the Chinese Mainland. The big problem will be whether the Northwest can contribute agricultural surpluses toward its own future economic development, and the answer depends on the success of cooperativization of agriculture and the maintenance of a constant outflow of food and agricultural raw materials. So far, we are only able to point out the trends in agricultural management and the stress on production of certain commercial crops and food staples. The problems the Communists have encountered and will continue to meet have also been mentioned. But it is still too early to venture an opinion as to the success of Chinese Communist policy in developing the broad base of agriculture in the Northwest.

INDUSTRY

A The Pre-Communist Period

*175 47 The Northwest was an industrially backward area in China. Before the Sino-Japanese War (1937-1945), over ninety percent of China's modern industrial plants were located in the coastal provinces, and very few people paid any attention to the industrial potential of this area. During the war years when the coastal provinces were lost to Japan, the importance of the Northwest greatly increased, and efforts were made to develop its industrial production in order to cope with the shortage of goods. But under the difficult conditions during the war, progress was very slow. Up to the end of 1942, the major industries in the Northwest were still limited to the manufacture of woolen, cotton and leather goods, machine tools, and flour-refining. (Handicrafts are not included, because of the lack of information.)

1. The woolen industry

*175 288 474 The woolen industry in the Northwest was distributed among the following cities: in Lanchou, Kansu, there were thirteen factories and thirteen cooperatives engaged in woolen manufacturing. The biggest one was the Kansu Woolen Weaving [491] Factory, which was built by Tso Tsung-tang in 1876 with a capital of some L 80,000. Equipped with a 240 horsepower generator and twenty-one machine looms, it began production in 1879, turning out some twenty pieces of woolen cloth per day. But production of this factory was interrupted from time to time due to political instabilities and other reasons. It did not fully come back to life until after the Sino-Japanese War when the Ministry of War took it over and changed it into a blanket-making factory for the armed forces. The next was the [471] Lanchou Woolen Weaving Factory, which had a capital of CNC $600,000, and which produced some CNC$6,000,000 worth of goods in 1942. Another is the Experimental Factory of the Weaving Cooperatives, which turned out some CNC$5,400,000 worth of goods in the same year. The rest were on a very small scale, using only hand looms. The twenty-six woolen factories and cooperatives in Lanchou had a total capital of CNC [433] [471] $2,800,000, and they produced 95,600 army blankets, 30,400 ordinary blankets, 800 square feet fine woolen, and 1,062 pieces of other woolen cloth in 1942, the value of which was CNC$22,600,000.

In Yü-lin, Shensi, there were nineteen small factories and nine industrial cooperatives. They had 204 looms in all. But only one was power-operated, and the rest were hand looms. The output of the industry as a whole was not reported, but it is known that the raw wool which they consumed during one

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*175 year exceeded 2,000,000 catties, or some 2,600,000 pounds.
288 There were twenty-five factories in other cities in Shensi,
474 of which number thirteen were in Sian, nine in Pao-chi, and one each in San-yuan, Ta-li and Pai-shui. Their output was also not disclosed, but their annual consumption of raw wool was reported as 720,000 catties ching, much smaller than that in
N Yu-lin. Besides, there were ten cooperatives in Sian and Pao-
[433] chi, which could produce 600,000 to 700,000 army blankets per year.

N In Ninghsia, there were five small factories with a total
[471] capital of CNC$230,000. They produced some CNC$1,200,000
[433] worth of goods in 1941. All of them were using hand looms.

S In Sinkiang, there was one woolen factory in operation, but
[288] details are lacking. There is no report of woolen factories or cooperatives in Chinghai.

N 2. The cotton industry
*175 The development of cotton industry in the Northwest was
288 mainly stimulated by the Sino-Japanese War. Before 1937, there was not a single modern cotton factory in this area. But during the war, many factories had moved from the Japanese-occupied areas to Shensi, and many new ones were built there. In 1942, the total number of spindles exceeded 60,000, and the annual consumption of raw cotton was 130,000 piculs, about twelve percent of the total production of Shensi.

N 3. The machine tool industry
392 There were forty-five machine shops in Shensi, six in
S Kansu, and three in Sinkiang. The more important ones are as
[392] follows:

1. Hsi-ching Machine Factory, Sian, which was built around 1910 and equipped with fifty-five tool-making machines such as lathe, planing, drilling and pressing machines. Its annual capacity was as follows: four lathe, three water-pumping machines, ten iron looms, five cotton extracting machines, twenty ginning machines, five printing machines, and a number of paper-making machines. Besides, it also accepted orders for the repair of machinery and weapons of war.

2. Hsi-ching Machine Repairing Factory, Sian, the main job of which was to make auto parts. Its monthly output was 90 pistons, 2,500 piston rings and 180 gears, enough for the maintenance of eighty trucks.

3. An iron works, operated by the army, which turned out some twenty looms per month, and also basic machine tools.

4. The Northwest Machine Factory, which had more than eighty basic machine tools, such as lathe, planing machine, drilling machine, etc., was perhaps the largest machine shop in the Northwest, and its main task was to make looms and parts for the textile industry.

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4. The leather Industry

282 There were eleven tanning or leather goods factories in Shensi and twelve in Kansu. Their total capacity was 180,000 (433) pieces of hide per year, which amounted to only eighteen percent of the total production of hide in the Northwest.

Two factories were partly equipped with machinery. One was the Northwest Chemical Leather-making Factory in Sian, which had mechanical press, mechanical brush, sprayers, and its own generator. It used more than one thousand pieces of raw hide per month, and its output included shoes, belts, and other leather goods. The other was the Lanchow Leather-Making Factory, which had mechanized sander, sewing machines, pumps, and other equipment. Its products included leather and leather goods. The rest were small factories, using very simple tools.

5. The flour industry

256 There were eight modern flour mills in Shensi and two in (433) Kansu, with a total capacity of 6,500,000 bags per year. On the basis that one bag of flour requires fifty-four catties of wheat, it was estimated that the total quantity of wheat used by the flour industry was 3,500,000 piculs per year, about 7.5 percent of the total production of wheat in the Northwest.

(433) The larger mills, such as the Hua-feng Flour Co. and Cheng-feng Flour Co. in Sian, and the Fo-hsin Flour Factory in Pao-chi, produce 3,000 to 5,000 bags per day. The rest were under one thousand.

6. Miscellaneous

388 (a) Soap-making. There were five small soap factories in (433) Shensi and four in Kansu. The total annual output was some 35,000 cases, which satisfied only a small part of the demand for soap in the Northwest.

289 (b) Paper. Paper-manufacturing was one of the main handicrafts in the Northwest which may be found in many places, but details were not available.

339 (c) Cement. The first cement factory was established in (491) Shensi in 1938, with a capital of CNC$200,000. It had nineteen kilns which turned out six or seven barrels a day. In 1939, another factory was built in Shensi, with a capital of CNC $2,000,000. Its capacity was around 18,000 barrels a year, but the quality of its products was very poor. Still another factory was under construction in Kansu, with a capital of 4,500,000. But up to the end of 1942, it had not yet begun production.

315 (d) Oil. Oil has been produced in north Shensi and Kansu for over a thousand years. But it was not until the early twentieth century that modern methods of extraction were used. Since then, five or six wells have been drilled in north Shensi. During the Sino-Japanese War, the Chinese government was very much

5. The excavation of a new coal shaft near Sian started on August 24, 1955, and is expected to be completed in 1958. It will become part of the Tungchwan coal mines.

2. Kansu

The most important industrial project in Kansu is perhaps the Yümen Oil Field. Since the Communists took over, extensive reconstruction work has been carried out in this major oil center of China with the help of experts from the Soviet Union, Czechoslovakia, Rumania and East Germany. The Communists boasted that production has increased many fold. If the index of production in 1950 was 100, that in 1951 was 140, and 1954 was 430. In 1955, they planned to produce thirty percent more crude oil than in 1954, and capital investment allocated for the sinking of new wells was twenty-five percent more than in 1954. Latest record of drilling is 234.3 meters in one day, and products include petroleum, kerosene, lubricating oil, diesel oils, tar and paraffin wax. The total output has never been revealed, but it is known that more than five thousand workers are employed.

The Communists have also paid attention to the development of industrial production in Kansu in general. In 1955, twenty-one state-owned or semi-state-owned factories and mines were built or renovated, and all of them are in operation. The more important ones are as follows: (1) a power plant in Lanchou, which increased the supply of electric power by fifty percent; (2) six oil-extracting plants in Kuting and Wuwei, which, when fully completed, will increase the production of vegetable oil in Kansu nearly two hundred percent; and (3) five small coal mines, which increased the coal production by 88.2 percent over 1954.

It was reported on April 4, 1953, that one of the country's largest copper deposits was found in Kansu, the Pai-yin-ch'ang copper mine, which they planned to develop under the first Five Year Plan as one of the major industrial projects in that area. There is also a report that a refinery has been built in Lanchou. But details on these developments are lacking.

There are comparatively few industrial activities in Chinghai. However, with the development of the Chinghai-Tibet highway, the Communists are hopeful that rich oil and coal deposits may be found in the Tsaidam Basin. Tsaidam is one of the country's major areas scheduled for oil-prospecting in 1955, and drilling has already been started there. Besides, mining of anthracite coal has begun in an undisclosed location in Chinghai, which was discovered by the builders of the Chinghai-Tibet highway in August 1953. Truck loads of the coal are now going regularly to Lhasa and other pointe along the new highway.

tractor repair works were under construction in 1955. Five int will have sixteen or fifteen mechanized worships. Each pl mpleted, they will be able to repair as many as 475 When co and combine harvesters each year in addition to tractors other farm tools and spare parts.

making e are scattered reports on other industrial developments Ther ing, such as: (1) the August First Iron and Steel Plant, in Sinki October Motor Car Repair and Assembly Shop, (3) the (2) the C i Automatic Electric Plant, (4) the modernized August Urumch our Mill, (5) the Khotan Silk Factory, (6) Houcheng First F e Manufacturing Factory, and (7) more than a dozen Airplan products processing plants, which process skins, furs animal stines for the purpose of exporting them to the Soviet and inte But detailed information on these projects is not avail- Union.

able.

5. Hand licrafts.

The foregoing analysis concerns itself with the development of mode rn industries in the Northwest under the Communist regime But handicrafts still play a very important role in this area as they do in other parts of the country. According to a 1951 re port, the main handicrafts in the Northwest were as follows:

(1) C otton cloth. A side line of the peasant, it was produced practic ally everywhere in the area. However, the more import- ant pro ducing districts are: 1. Sian, Paochi, in Shensi, 2. Tien- shui, K lo-hsi and Min-chin in Kansu, and 3. Turfan, toqsun and Aqsu in Sinkiang. In terms of quantities, the total annual output in Shen si is approximately 3,779,670 pieces; in Kansu, 3,505,760 pieces, in Sinkiang, 4,400,000 pieces.

(2) P ottery. The annual output of pottery in the Northwest amount s to over 4,000,000 pieces. Of that amount Shensi produces more t han 3,000,000 pieces, Kansu, 500,000, Ninghsia, 200,000, and Sin kiang, 50,000. The more famous pottery-producing district ts are: 1. Huang-pao-chen and Chen-lu-chen in Tung-chuan, Shensi which have been famous since the Sung Dynasty, 2. Yao- kai in Yung-teng, Kansu, 3. Ah-kan-chen, Lanchou, Kansu, and An-ko i-yao, Hua-ting, Kansu. The production consists mainly of pot bowls, tea-pots, plates and tea-cups.

(3) Paper. While paper is manufactured in many places in this area, the more important paper-producing districts are: 1. Nan- cheng (Han-chung), Shensi, 2. Khotan, Sinkiang, 3. K'ang-cheng and T en-shui, Kansu, and 4. Ying-chuan, Ninghsia. The main variet ies are as follows:

(a) The "rough-edge" paper. Usually used as a writing paper, it is p roduced and consumed mainly in Shensi. The annual output is abo ut 192,490 bundles.

(b) The "Flax paper." It may be made of white or black flax,

and is used mainly for wrapping. The annual output of the white flax paper is about 966,870 bundles, and that of black flax paper is 3,982,480. Part of this is exported to Szechwan, Hankow and Anhwei.

(c) The "improved" paper. It is produced and consumed mainly in Kansu, at the rate of some 300,000 bundles per year.

(d) The "mulberry-skin" paper. It is produced and consumed mainly in Sinkiang, at the rate of some 565,977 bundles a year.

(4) Bamboo articles. A side-line of farmers, they are made in many places, especially in Hua-hsien and Han-chung, in Shensi and Min-hsien, in Kansu. The annual output is estimated as follows: (1)farming implements, 29,280 piculs, (2) sieves, 132,300, (3) large bamboo baskets, 480,000, and (4) small bamboo baskets, 27,000.

(5) Straw hats. Also a side-line of farmers, they are made in many places, especially in Feng-hsiang, Wei-nan, Lin-tung, and Chang-an, in Shensi. The annual output in Shensi alone exceeds 1,377,900 hats.

(6) Brooms. They are made mainly in the districts near Mount Chung-nan, such as Mei-hsien and Chang-an. The annual output exceeds 800,000 brooms.

(7) Straw mats. They are produced mainly in Sui-te, Shensi, Chang-i, Kansu and Ninghsia City, Ninghsia. The annual output exceeds 3,000,000 pieces.

(8) Wooden rakes. One of the main farming implements in the Northwest, they are made mainly in Chang-an, Pu-cheng and Tung-chuan, Shensi. The annual output is about 88,000 pieces.

(9) Iron utensils. They are produced mainly in Pao-chi and Feng-hsiang in Shensi, and Tienshui in Kansu. The annual output is about 76,000 counts.

(10) Carpets. Carpet-making is one of the main handicrafts in Sinkiang. The carpets come in various sizes, up to eight by sixteen feet. The annual output exceeds 10,000 square feet. Of that quantity, some six thousand square feet is exported to India, Afghanistan and Soviet Russia and the rest is sold locally or to other provinces in the Northwest.

6. Evaluation and Prospects.

For the time being, the Communists seem to have concentrated on two things in industrializing the Northwest, one being the cotton industry in Shensi and Sinkiang, and the other being the oil industry in Kansu, Sinkiang and Chinghai. From the economic point of view, these developments are not unnatural, because Shensi and Sinkiang have been famous for their raw cotton, and the oil reserve in China is largely located in the Northwest.

While the present industrial development in the Northwest may not appear so impressive, this area will probably become

one of the most important industrial areas in China for three reasons. First, the Northwest, especially Sinkiang, has shown great promise in mineral deposits. The Communists have sent out thousands of geologic prospectors to this area, and reports of new discoveries have frequently been publicized by the Communist papers, (see the section on Mineral Resources). Second, the geographical location of this area is such that it would be the ideal location for China's new industries from the strategic point of view. Last, as this area borders on Soviet Russia, it would be more convenient from the standpoint of accepting technical aid from Russia.

Based perhaps on the above-mentioned reasoning, the Communists have paid special attention to the future development of this area. In Sinkiang, for instance, before the Communists took over, there was very little industrial production. But in 1952, the total industrial production in Sinkiang amounted to New JMP$39,075,400, not including the value of handicrafts, which amounted to New JMP$135,598,000. In terms of percentages of the 1952 production in Sinkiang, the industrial production accounted for 5.71 percent of the total, and the handicrafts accounted for 19.81 percent. According to plans, by the end of 1957, the value of industrial production in Sinkiang will be increased to New JMP$292,758,500, or 749 percent of that of 1952. If these plans are carried out, industrial production will account for 22.64 of the total production in Sinkiang and handicrafts will account for 15.09 percent of the total; the planned total production for 1957 would be New JMP$1,293,227,200.

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Sinkiang and Outer Mongolia have been re-opened for traffic. (See section Communications.) With these improvements in transportation, it is only logical to assume that trade in the Northwest must also have increased in volume.

Another important change is the increase of production of the Yumen Oil Field and the establishment of four new textile factories in Shensi (for details see section Industry). Although there is no information on the distribution of these products, it is reasonable to assume that most of them are intended for the consumption in the Northwest. If this is the case, the import of textiles and kerosene, which were two of the most important items of the imports of this region, must have been reduced.

Still another important change is the enlargement of cotton plantations in Sinkiang. It is reported that the China Cotton, Yarn and Cloth Company in Sinkiang-Uighur Autonomous Region plans to send five thousand tons of cotton to other parts of the country in addition to ensuring an adequate supply for local consumption. On November 3, 1955, the first cargo of cotton of Sinkiang was dispatched to Shensi for its textile industry.

B. Government Control

The Communist control of trade in the Northwest is more or less the same as that in other parts of the country. The main instrument of control is the state trading companies, which are in charge of wholesale trade and, together with the various co-operatives and mobile trading units, purchase of native products from this region. According to Communist reports, the six basic commodities in Sian, i.e., food, cotton cloth, edible oil, coal, tea and salt, have been fully monopolized by the state trading companies since June 29, 1955; and all private wholesale establishments dealing with those goods have been liquidated. More than one hundred members of the "capitalist side" were sent to reform camps, and the store assistants were either employed by the state trading companies or sent back to their native places to seek other employment. In the Sinkiang-Uighur Autonomous Region, the number of branches of state trading companies exceeded five hundred in 1954, about eight times as many as in 1950. They provide the people there with general merchandise, cotton cloth, oil and fats, petroleum, pharmaceuticals and stationary.

Aside from supplying goods on the wholesale level, the state trading companies have also undertaken to buy goods from this region. Among the goods bought in 1950 are: (1) wool, 23,000 catties, (2) hides, 800,000 pieces, (3) intestines, 1,270,000 pieces, (4) bristles, 280,000 catties, (5) tung oil, 4,500,000 catties, (6) medical herbs, 4,000,000 catties, (7) cotton, 800,000 piculs and (8) grain, 130,000,000 catties (cf. The Native Products of the Northwest, preface, Sian, 1951).

C. Civil Aviation

The Chinese Communist Civil Aviation Company, which until the end of 1955 was a Sino-Soviet jointly-owned corporation and was still entirely adjusted to the Russian system, raised its service from two to four trips a week from Lanchou via Chiuchuan, Hami to Urumchi. There was another flight twice a week, continuing the route from Lanchou to Sian where two sub-lines existed, one to Peking and the other southbound to Chungking. A third flight, also twice a week, connected Urumchi with Alma Ata through Ili by the Sino-Soviet international route; and the fourth was running inside Sinkiang from Urumchi via Kucha, Aksu to Kashgar.

IV. Conclusion

The influential role which the development of transportation and communications can play in the creation of a favorable climate for sustained national economic growth, needs no elaboration. The Northwest which contains many of China's untapped mineral resources, and where the potential of agricultural development is fairly high, is a region where the man-resource ratio is low and the long-run economic potential is promising, provided it is linked with the populous regions of China and the outside world by better transport and a modern system of communications.

Transportation and communications development in Northwest China used to lag far behind the other regions as did its agriculture and industry. After the establishment of the Communist regime, transportation construction activities in this area have increased greatly in the form of railway and highway construction. Of the total railway construction in Red China from 1950 to 1955, newly-built roads in the Northwest amounted to thirty per cent. Meanwhile the Lanchou-Sinkiang Railway, Lanchou-Pao-t'ou Railway and Chengtu-Paoki Railway were still under way and the Lanchou-Chinghai Railway was projected for 1956.

Highways were constructed or renovated mostly along the old routes already in existence prior to 1949, some of which might not have been motor roads. Among them the most notable ones were the Hsi-ning-Tibet Highway, Sian-Lanchou-Urumchi Highway, Ansi-Tun-huang-No-chiang-Ho-tien-Kashgar Highway and the T'si-ning-Chin-hung-shan-No-chiang-Kashgar Highway. Three international highways starting at Urumchi across the Sino-Soviet border linked up with the stations on the Soviet Turksib Railways. Air transportation was to be established to strengthen the Sino-Soviet relationship from Peking to Moscow via Sian, Lanchou, and Urumchi.

It is true that Chinese Communists had devoted much attention to construction in the Northwest area, especially in the phase of transportation and communication. Aside from their shrewdness

in understanding the long-run economic potential of this region, it is equally true that there must have been some other reasons forcing them to develop this remote region more swiftly than they might otherwise have done, investing in it sizable amounts of much needed capital backed by considerable forced labor. Other factors, both internal and external, should therefore be taken into consideration. In the first place, Communist China had made a tremendous effort to shift the center of its gravity from the coastal regions into these relatively empty lands bordering Soviet central Asia, perhaps partly as a result of the United Nations embargo and the Korean War. Secondly, the forced pace of development in the Northwest might be partly a defense measure. During the War in Korea it became clear how vulnerable Manchuria was to bombing attacks. Had the United Nations chosen to do so, most of Manchuria's industrial complexes could have been destroyed. But in the Northwest, factories, railways and mines were far safer than anywhere else in China. Moreover, this area would assure maximum secrecy for projects which Red China and Russia were reported to have been jointly undertaking. ("I Saw Communist China" by Robert Guillain in the Saturday Evening Post, June 2, 1956, p. 114.)

Following on the heels of the railway construction work, a huge oil refinery at Lanchou was built. It is also reported that between Lanchou and the site of the refinery, a road was constructed more than twice as wide as Fifth Avenue in New York city, and a large hill thickly covered with houses was completely leveled to make the road straight. At Lanchou the railway yard under construction contained fifty kms. of tracks, with modern equipment such as turntables, grain silos, refrigerating plants and the like, all brought from Russia. Along the wide road, the beginning of what is called New Lanchou has arisen. In Sinkiang, a new city was born in Urumchi, where giant factories have been built, including the Sinkiang Non-ferrous Metals Co., the Sinkiang Petroleum Co., the Sinkiang "August 1st" Iron and Steel Plant, the Sinkiang Machinery Plant, the October Motor Car Repair and Assembly Shop, the Urumchi Automatic Electric Plant, and the like. This accomplishment in industrial construction and future plans of industrial development are indeed very much tied up with communications development.

Communist China may very well focus its principal attention on the Northwest during the period of its second Five Year Plan scheduled to begin in 1958, just as the first Five Year Plan concentrated on the Northeast. The Northwest might then play a major role in the economic relations between China and Russia, and be industrialized to a level comparable with Manchuria.

It may therefore be concluded that so long as there are both internal and external pressures, and the "lean-to-one-side"

#668 policy is enforced, further economic exploitation and construction
185 may be carried out, and more rapid and deliberate development of
• 433 communications may be forthcoming in this remote northwest area.